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ABSTRACT

This report is the result of a survey conducted in Connecticut to determine the status of environmental education in the elementary and secondary schools. One major purpose of the survey was to identify the principal strategies used to introduce environmental education to the school programs. The two most popular methods being used nationwide were integration and course addition. Different questionnaires for grades K-6 and 7-12 were developed and distributed throughout the state. The results of the survey indicated that integration was used most often in both elementary and secondary schools; however, the degree to which this method was utilized decreased in the higher grade levels where more course offerings were available. Also, it was found that the environmental education programs were primarily science oriented, at both the elementary and secondary levels. Recommendations included the need for more integration of the social, political, and aesthetic aspects of environmental education, as well as for more inservice teacher preparation and dissemination of information on existing environmental education materials. (MA)

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Connecticut State Department of Education
Bureau of Elementary and Secondary Education

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Introduction

Over the past few years there has been a great deal of interest and activity in environmental education. Some support for this activity has come from federal, state, private, and other concerned institutions and groups. This support has been largely in the form of program and material development, and the organization of workshops, inservice opportunities, and conferences.

As a result of this interest, a veritable avalanche of environmental education materials has been developed. New programs and instructional approaches have come forth and are still coming forth with great frequency. This present abundance of programs is a happy contrast to the situation of a few years back when such resources were in short supply.

A major portion of the activity in environmental education has been undertaken by those groups on the firing line - the local school districts which must make provisions for their students.

In an effort to determine the status of environmental education in the elementary and secondary schools of Connecticut, a survey was undertaken to learn of the types of course and topic offerings, and the ways in which these offerings were placed in the school program. The survey was initiated by the Connecticut State Department of Education and the Connecticut State Council for Environmental Education with the support of the Northeast Environmental Education Development group, a consortium of nine northeastern states of which Connecticut is a member.

Special acknowledgment and thanks are given to the many individuals in local systems who filled out the questionnaires and returned them to the Department.

Environmental Education - Definition and Approaches to Instruction

Because it touches upon so many subject matter areas, environmental education is often defined as that discipline which is concerned with the biological, physical, and cultural aspects of our world. From an instructional standpoint, environmental education is especially suited to cross disciplinary approaches. It ranges from such science oriented topics as energy generation and air pollution to aesthetically oriented topics such as architecture and land usage to socially oriented concerns as the role of governments in the continual tradeoffs which must be considered in order to coordinate environmentalism with economics.

On a national scale, the literature indicates that two major strategies have been used in introducing environmental education into school programs - integration and course addition.

Integration involves the placement of appropriate environmental topics into existing subject offerings. For example, at the secondary school level, a course in biology can be modified to include topics such as eutrophication or biodegradation. A course in economics might be modified to include the effects of developing urban transportation systems on the economics of metropolitan areas. Integration can be used at the elementary level by introducing environmental topics into reading, science, social studies, and other programs.

The second approach to the placement of environmental education in the school program is by the addition of separate courses. Subjects such as "Environment and Man," "Science and Society," "Ecology," and "Environmental Education" are added to the program of studies on a full year, semester, or minicourse basis. Often these courses will utilize the instructional capabilities of teachers from various subject matter areas.

One of the major purposes of the survey was to determine what patterns were in use in Connecticut. Such information could then be used by those attempting to modify their school programs to include environmental education as an area of instruction.

The Survey

Two questionnaires were developed - one each for the K-6 and 7-12 levels. The elementary school questionnaire dealt with the patterns of environmental education offerings, methods of integration, time spent on topics, outside school activities, instructional responsibilities, utilization of guides and media, and the grade placement of selected topics.

The secondary school questionnaire dealt with patterns and grade levels of offerings, time devoted to courses or topics, outside activities, teachers backgrounds, and topic emphasis. It should be noted that questionnaires were sent to districts--not to individual schools--and that responses were collected on a district-wide basis.

Questionnaires were sent to all public school districts and Archdioceses in the State. Elementary school returns were received from 119 districts and the Archdioceses of Hartford and Bridgeport. Secondary school returns were received from 113 school districts, the Shanti School, and the Archdioceses of Bridgeport.

This represents a return of 80% for the public school districts and 67% for the private districts at the elementary school level. At the secondary school level there was a 76% return for the public school districts and a 33% return for the Archdiocese districts.

Highlights of the Survey

A. Elementary (K-6)

1. Ninety-nine percent of the districts responding indicated that environmental education was offered in some form in grades K and 1. One hundred percent of the districts responding indicated that environmental education topics were offered at each grade level from 2 through 6.

2. In over 96% of the cases, environmental education topics were integrated into other subjects either as a planned part of the other subject, as a planned unit added to the subject, or as incidental instruction deemed appropriate by the teacher.

3. In 3.6% of the districts, environmental education was offered as a separate subject. In such instances, two or less hours per week were offered by 77% of the districts, three hours per week by 21% of the districts, and four or more hours per week by the remaining 2% of the districts.

4. Sixty-seven percent of the districts integrating environmental education topics into existing subject matter areas do so into a combination of areas. This combination includes such subjects as language arts, mathematics, science, social studies, and art.

5. When environmental education is integrated into one subject matter area, science is the predominant choice (22% of the districts) followed by social studies (5% of the districts). Language arts, mathematics, art, and health (1% each) are utilized for this purpose to a much smaller extent.

6. The primary responsibility for instruction in EE lies with the classroom teacher in 85% of the cases. In 14% of the cases, the classroom teacher has the help of a specialist or coordinator. In less than 1% of the cases, environmental education topics are taught by a specialist, coordinator, or someone other than the classroom teacher.

7. Seventy percent of the districts report that some of the elementary school teachers have participated in EE workshops, curriculum development projects, or meetings within the last year.

8. Forty-seven percent of the districts indicated that their elementary schools make use of local curriculum guides, twenty-nine percent make use of State guides. Sixteen percent make use of an EE text series.

Eighty-seven percent reply on the teacher to select the content of the program. Ninety-five percent report the use of student activities in their program.

9. Only 3 percent make use of a standardized testing program in environmental education.

10. Eighteen percent of the reporting schools make use of films very often, 70% occasionally, and 12% rarely.

11. Resource persons are utilized very often in the environmental education programs of 9% of the elementary schools; occasionally in 53%, rarely in 34%, and never in 4%.

12. The more popular topics in the primary grades are resource conservation, water pollution, food production and distribution, and personal and social responsibilities toward environmental quality.

In the intermediate grades, the more popular topics are urban development, use of technology, environmental laws, resource management, and population mobility.

B. Secondary (7-12)

1. Environmental education is offered in various ways in the secondary schools of Connecticut. Thirteen percent of the districts report that schools containing grades 7, 8, and 9 offer environmental education as a separate course. Thirty-four percent of the districts report that in schools containing grades 10-12 environmental education is offered as a separate course.

2. The percentage of schools offering environmental education as a separate course increases with each grade level from 8 (11%) to 12 (58%). Thirteen percent of the districts report their schools offer environmental education as a separate course in grade 7.

3. The percentage of schools requiring of all students environmental education as a topic--not necessarily a course--decreases each year from 16% in grade 7 to 1% in grade 12.

4. In most cases (average of 62% for grades 7-9 and 53% for grades 10-12) environmental education topics are offered as a part of other courses. As at the elementary level, although by not as great a percentage, secondary schools utilize integration of environmental education topics as the predominant method for making offerings in that area.

5. When environmental education topics are integrated into other courses, they are usually placed in these courses as planned units (52% Grades 7-9, 41% Grades 10-12). Second to this approach is incidental instruction where deemed appropriate by the instructor (35% Grades 7-9, 29% Grades 10-12). In s smaller number of instances, the integrated units are a part of a planned program of study (12% Grades 7-9, 28% Grades 10-12).

6. When environmental education is offered as a separate subject, it usually receives four or more periods per week in which to be tuaght. These periods are most often 41-50 minutes in length.

7. Field trips are the most common form of extracurricular activity in environmental education (41% Grades 7-9, 36% Grades 10-12), followed by outdoor programs on school sites (37% Grades 7-9, 30% Grades 10-12), and then by trips to nature centers (14% Grades 7-9, 25% Grades 10-12). Other activities such as clubs, fairs, and so on are engaged in to a lesser degree.

8. The academic background of the teacher or teachers offering instruction in environmental education is most often in the sciences (43% Grades 7-9, 60% Grades 10-12). Teachers whose backgrounds cross subject discipline areas or teams of teachers with different subject matter backgrounds are next in frequency (31% Grades 7-9, 18% Grades 10-12). Teachers with backgrounds in the social studies (4% Grades 7-9, 5% Grades 10-12), fine arts (3% Grades 7-9, 2% Grades 10-12), or the practical arts (3% Grades 7-9, 2% Grades 10-12) are involved much less frequently.

9. When environmental education is integrated into existing subjects, it is most often placed into a combination of disciplines (51% Grades 7-9, 44% Grades 10-12). The most popular single subject utilized for integration is science (38% Grades 7-9, 40% Grades 10-12). This is followed by social studies (13% Grades 7-9, 13% Grades 10-12). Language arts and fine arts are utilized to a very small (1-2%) degree.

10. Over 50% of the districts responding indicate that, at the secondary school level, they give major emphasis to recycling, food chains, and webs, personal and social responsibilities to environmental quality, wetlands, air pollution, water pollution, and water resources. Over 50% of the districts responding indicate that they give minor attention to mineral resources, forest resources, land usage, soil pollution, urban development, solid waste disposal, population patterns, food production and distribution, sewage disposal, environmental aesthetics, open space requirements, and mass transportation. Of those districts reporting no instruction in a given topic--coastal zone management scored highest with 42%.

11. Many resources and resource personnel are used in environmental education. Occastional use is made of local curriculum guides (24%), state curriculum guides (40%), environmental textbooks (34%), outside resource persons (54%), and displays (58%). Frequent use is made of student planned activities (43%), supplementary readings (45%), and films (52%).

Discussion

Environmental education is making its way into the instructional programs of Connecticut's schools. The predominant form of presentation of environmental education topics is integration at both the elementary and secondary levels. As should be expected, the degree to which this procedure is utilized decreases as one proceeds up the grade sequence and opportunities for course offerings increase.

Environmental education offerings are heavily science oriented. The data gathered indicate that this is true at both the elementary and secondary levels. Since environmental education is cross disciplinary, consideration should be given to increasing attention to environmental concerns in other subject-matter areas. While it is true that many environmental topics such as energy utilization, air pollution, land use planning, and environmental legislation, have had the science implications stressed, the social, political and aesthetic implications are equally important and will, perhaps, in the future, have far reaching effects on our standards of living and our ability to survive on this planet. This emphasis on futurism and the closed ecosystem is a viable need in the social studies and humanities programs of the schools.

Combining results for the returns from the elementary and secondary school indicates that in the majority of instances environmental education topics are integrated into existing subjects as incidental instruction or as unspecified units. It would appear therefore, that additional attention should be given to inservice education and the dissemination of information about presently existing environmental materials and teaching techniques. This would provide a means to enhance the integration of environmental education topics into the planned activities of the subject areas in which they are taught.

CONNECTICUT STATE DEPARTMENT OF EDUCATION
Bureau of Elementary and Secondary Education
Hartford

Elementary Schools

Questions

A. Which pattern of environmental education best describes that used at each grade level?

a. a separate subject scheduled each week

b. correlated or integrated in other subjects but not as specific units

c. planned units taught in other subjects

d. incidental instruction when deemed appropriate by the teacher

e. not taught

	Response				
Grade	a	b	c	d	e
K	2%	46%	11%	40%	1%
1	2	63	9	25	1
2	3	62	15	20	0
3	4	64	19	13	0
4	5	59	26	10	0
5	4	55	29	12	0
6	5	53	28	14	0

B. If you chose answer a. (separate subject)-in question a. for any grade, estimate how many hours per week are devoted to environmental education:

a. 1 or less

b. 2

c. 3

d. 4 or more

	Response			
Grade	a	b	c	d
K	86%	0%	14%	0%
1	43	57	0	0
2	33	67	0	0
3	30	40	30	0
4	40	20	30	10
5	25	38	37	0
6	29	42	29	0

C. If you answered (b) or (c) to question a., indicate where environmental education is integrated into courses

a. language arts

b. mathematics

c. sciences

d. social studies

e. art

	Response						
Grade	a	b	c	d	e	f	g
K	10%	0%	11%	5%	2%	71%	1
1	3	1	18	7	1	69	1
2	1	1	19	8	1	69	1
3	0	1	24	8	1	65	1
4	1	1	29	4	1	63	1
5	0	2	24	4	1	68	1

Questions

C. (Cont'd)

	Response						
f. combination of above	Grade	a	b	c	d	e	f	g
	5	0	2	24	4.	1	68	1
g. Health Education	6	0	2	27	1	1	68	1

D. What is the estimated number of hours per year spent in environmental education?

	Response				
Grade	a	b	c	d	e
K	83%	16%	1%	0%	0%
1-3	63	31	3	3	0
4	48	42	6	4	0
5	42	41	12	4	1
6	42	39	12	5	2

a. less than 40

b. 41-75

c. 76-110

d. 111-150

e. more than 150

E. What activities outside the school are included in the environmental education program?

	Response				
Grade	a	b	c	d	e
K	71%	61%	2%	19%	4%
1-3	79	70	3	36	6
4	75	69	5	36	6
5	74	73	3	38	7
6	63	85	4	34	9

a. field trips

b. outdoor programs on school sites

c. summer camps

d. nature centers

e. others (please specify)

F. Who has the primary responsibility for environmental education?

	Response				
Grade	a	b	c	d	e
K-3	88	12	0	0	0
4	85	15	0	0	0
5	85	14	1	0	0
6	83	16	1	0	0

a. the classroom teacher

b. classroom teacher with help of a specialist or coordinator

c. environmental education coordinator, supervisor or specialist

d. environmental education teacher

e. other (specify)

Questions

G. During the past school year, did elementary classroom teachers participate in teachers meetings, workshops, or curriculum development in any area of environmental education?

a. yes

b. no

Response	a	b
	70%	30%

H. In your program of environmental education, do your elementary schools

a. yes use state curriculum guide?

b. no use a local curriculum guide?

use an environmental education text series?

leave the content to the individual teacher?

utilize pupil activities in the program

use standardized testing programs

Response	a	b
	29%	71%
	47	53
	16	84
	87	13
	95	5
	3	97

I. To what extent do your elementary schools use films in environmental education?

a. very often

b. occasionally

c. rarely

d. never

Response	Grade	a	b	c	d
	K-3	15%	69%	16%	0%
	4-6	22	70	8	0

J. To what extent do your elementary schools use resource persons in environmental education?

a. very often

b. occasionally

c. rarely

d. never

Response	Grade	a	b	c	d
	K-3	8%	49%	39%	4%
	4-6	10	57.	30	3

K. Where do the following topics first receive major emphasis in your environmental education program

a. Grades K-2

b. Grades 3-4

c. Grades 5-6

d. not considered

e. no planned program

	Responses				
	a	b	c	d	e
Mineral Resources	22%	37%	26%	2%	13%
Wet Lands	14	39	30	3	14
Air Pollution	53	21	15	0	11
Forest Resources	35	40	16	0	9
Water Pollution	51	27	12	1	9
Land Usage	14	40	25	3	18
Coastal Zone Mgt.	1	10	24	16	49
Soil Pollution	15	31	33	2	19
Urban Development	7	24	31	9	29
Mass Transp.	18	20	25	7	30
Water Resources	28	35	25	0	12
Solid Waste Disposal	7	11	37	11	34
Population Patterns	3	15	34	14	34
Food Prod. & Distribution	38	29	16	0	17
Recycling	31	26	23	3	17
Sewage Disposal	5	18	39	6	32
Population Mobility	4	17	29	10	40
Environmental Aesthetics	36	15	21	2	26
Open Space Requirements	5	10	29	12	44
Food Chains & Webs	2	[illegible]	18	3	24
Birth-Death Ratio	3	4	[illegible]	16	51
Pers. & Social Resp. toward Environmental Quality	53	14	12	4	17

K. (Cont'd)

Where do the following topics first receive major emphasis in your environmental education program

a. Grades K-2

b. Grades 3-4

c. Grades 5-6

d. not considered

e. no planned program

	Responses				
	a	b	c	d	e
Man-Land Ratio	4%	7%	28%	12%	49
Use of Technology	6	24	34	7	29
Environmental Laws	6	21	37	5	31
Resource Management	5	13	31	10	41

SA:pdep

Secondary Schools

Questions

A. Do your secondary schools offer a separate course in environmental education?

a. yes

b. no

Grade	Response a	b
7	13%	87%
8	11	89
9	16	84
10	23	77
11	38	62
12	42	58

B. Which best describes the status of environmental education in your secondary schools?

a. required of all students

b. required of some students

c. an elective course is offered

d. some environmental education is available in other courses

e. none is offered

Grade	Response a	b	c	d	e
7	24%	1%	4%	59%	12%
8	16	2	6	60	16
9	8	2	14	66	10
10	7	3	23	64	3
11	1	2	43	49	5
12	1	2	46	47	4

C. If environmental education is integrated into other courses, which best describes how this is done?

a. incidental instruction when deemed appropriate

b. planned units included in other courses

c. a planned program of study with specific units planned in various courses

d. other (specify)

Grade	Response a	b	c	d
7	34%	55%	10%	1%
8	41	46	12	1
9	32	55	13	0
10	23	50	26	1
11	35	35	27	3
12	32	37	28	3

Questions (Cont'd)

D. If environmental education is offered as a separate subject, how many periods per week are devoted to it.

a. 1 or less

b. 2

c. 3

d. 4 or more

Grade	Response a	b	c	d
7	60%	3%	0%	37%
8	27	6	0	67
9	7	7	0	86
10	5	5	15	75
11	3	3	11	83
12	2	2	11	85

E. What is the length of the environmental education class period?

a. 30 minutes or less

b. 31-40 minutes

c. 41-50 minutes

d. 50 or more minutes

Grade	Response a	b	c	d
7-8	4%	8%	72%	16%
9	0	20	50	30
10-12	0	11	61	23

F. What activities outside the school are included in the environmental education program? (Circle more than one letter if appropriate.)

a. field trips

b. outdoor programs on school sites

c. summer camps

d. nature centers

e. others (please specify)

Grade	Response a	b	c	d	e
7	62%	57%	2%	22%	11%
8	55	57	2	19	10
9	45	48	2	12	8
10	52	48	3	17	10
11	48	37	2	17	12
12	52	42	2	18	13

G. Where environmental education is offered as a separate course, what best describes the academic background of the teacher(s) involved?

a. social studies

b. sciences

c. practical arts

d. language arts

e. fine arts

f. mathematics

g. other (specify) H. comb. of above

Grade	Response a	b	c	d	e	f	g	h
7	2%	43%	3%	0%	2%	0%	15%	35%
8	3	42	3	0	3	0	15	34
9	7	44	4	0	4	0	19	22
10	12	44	3	0	3	0	15	23
11	4	64	2	0	2	2	10	16
12	2	66	2	0	2	2	9	17

Questions (Cont'd)

H. If planned environmental education is incorporated into other subject areas, where is this most typically done?

	Response							
Grade	a	b	c	d	e	f	g	h
7-9	35%	13%	0%	0%	0%	1%	0%	51%
10-12	40	13	1	0	0	1	1	44

a. sciences

b. social studies

c. language arts

d. mathematics

e. practical arts

f. fine arts

g. other (specify)

h. comb. of above

I. In your secondary schools, to what extent do you make use of the following?

a. always

b. very often

c. occasionally

d. rarely

e. never

	Response				
	a	b	c	d	e
local curriculum guide in environmental education	16%	24%	26%	9%	25%
state curriculum guide	1	6	40	21	32
environmental education textbooks	14	28	34	13	11
student planned activities	7	43	37	9	4
outside resource persons	4	16	54	21	5
supplementary readings	14	45	36	4	1
films	6	52	38	3	1
displays	1	17	58	23	1

Questions (Cont'd)

J. Please indicate for each of the following the degree of emphasis it receives in your secondary school environmental education program:

a. major

b. minor

c. none

	Response a	b	c
mineral resources	40%	57%	3%
wetlands	55	39	6
air pollution	75	25	0
forest resources	35	60	5
water pollution	83	17	0
land usage	35	63	2
coastal zone management	14	44	42
soil pollution	34	58	8
urban development	27	51	22
mass transportation	20	60	20
water resources	70	27	3
solid waste disposal	33	62	5
population patterns	30	54	16
food production and distribution	27	64	9
recycling	53	47	0
sewage disposal	36	58	6
population mobility	11	69	20
environmental aesthetics	30	57	13
open space requirements	20	67	13
food chains and webs	61	30	9
birth-death ratio	25	63	12
personal and social responsibilities toward environmental quality	73	26	1

Questions (Cont'd)

J. Please indicate for each of the following the degree of emphasis it receives in your secondary school environmental education program.

a. major

b. minor

c. none

	Response a	b	c
Man-land ratio	18%	61%	21%
use of technology	42	50	8
environmental laws	35	57	8
resource management	21	72	8

DISTRICTS REPORTING THAT THEIR SECONDARY SCHOOLS

OFFER A SEPARATE COURSE IN ENVIRONMENTAL EDUCATION

	Grade 7	Grade 8	Grade 9	Grade 10	Grade 11	Grade 12
Avon		X	X			
Bloomfield			X		X	X
Bristol	X				X	X
Cheshire	X	X			X	X
Colchester					X	X
Coventry			X	X	X	X
Danbury		X	X			
East Haddam					X	X
Enfield	X	X	X	X	X	X
Fairfield				X	X	X
Farmington		X				
Griswold					X	X
Groton			X	X	X	X
Guilford	X			X	X	X
Haddam				X	X	X
Killingly					X	X
Manchester			X	X	X	X
Meriden					X	X
Milford					X	X
Naugatuck						X
New Britain					X	X
New Canaan	X	X				X
Newtown					X	X
North Branford			X	X	X	X
Norwalk						X
Norwich		X				
Old Saybrook	X					
Plainville					X	X
Plymouth			X	X		
Redding	X	X				
Ridgefield					X	X
Rocky Hill	X					
Shelton		X		X	X	X
Simsbury		X				X
Stafford			X	X	X	X
Stonington				X	X	X
Stratford	X					
Trumbull	X	X	X			
Watertown					X	X
West Hartford				X	X	X
West Haven				X	X	X
Weston	X					
Westport				X	X	X
Wilton					X	X
Windsor	X			X		
Amity High					X	X
Rham High	X		X	X	X	X
Joel Barlow High			X	X	X	X
L. S. Mills High			X	X	X	X
Shepaug Village				X	X	X